



Ciudad de México, April 27th, 2016.  
DARI.2016.059

Federal Communications Commission  
International Bureau  
445 12th Street, S.W.  
Washington, D.C. 20554

**Re: Engineering Certification with respect to E115WB at 114.9° W.L. (Ku4 Beam Coverage)**

To Whom It May Concern:

This letter certifies that Satélites Mexicanos S.A. de CV dba Eutelsat Americas (“EAS”) understands that Global Eagle Entertainment, Inc. (“GEE”) is seeking to modify its existing Federal Communications Commission (“FCC”) blanket authorization (Call Sign E080100) for operation of Ku-band Earth Stations Aboard Aircraft (“ESAA”) as an application of the fixed-satellite service (“FSS”) and consistent with ITU RR 5.504A. GEE is seeking to modify its FCC authorization to add satellites as additional points of communication, including the E115WB satellite at 114.9° West Longitude and under Ku4 Beam coverage.

EAS further understands that GEE’s primary transmit/receive antenna is a steerable antenna manufactured by TECOM designed to provide bi-directional broadband services to aircraft in flight. The antenna is identified by the model number Ku-Stream 1000. It supports reception and transmission in the 11.70-12.2 GHz /14.05-14.47 GHz bands covered by GEE’s existing FCC License. The antenna is an independent linear polarized array equivalent to a 0.62 meter parabolic antenna with a transmit gain of 28.8 dBi at 14.25 GHz and a receive gain of 31.1 dBi at 11.75 GHz. The antenna operates under gimballed motor control to orient the antenna in azimuth, elevation and polarization and achieves a  $\pm 0.2$  degree pointing accuracy during active tracking of the intended satellite. The antenna complies with Section 25.209 of the FCC’s Rules with respect to the off-axis co-polarization gain in the plane of the geostationary satellite orbit and to the off-axis cross polarization gain using the parameters of GEE’s existing FCC license, under which it will continue to operate for all flights within U.S. airspace. Outside the continental United States, GEE will operate at higher skew angles to maximize coverage,

operating in conformity with European Telecommunications Standards Institute European Standard (EN) 302 186, Satellite Earth Stations and Systems (SES); Harmonized EN for satellite mobile Aircraft Earth Stations (AESs) operating in the 11/12/14 GHz frequency bands covering essential requirements under article 3.2 of the Radio & Telecommunications Terminal Equipment Directive.

The actual skew angle is constantly monitored by the antenna control system, and the aircraft transmitter will be muted in the event that a skew angle of  $\pm 35^\circ$  is exceeded. When communicating with E115WB, GEE will operate its antenna within the 14.05-14.47 GHz FSS uplink band and the 11.7-12.2 GHz FSS downlink band transmitting with a maximum equivalent isotropically radiated power (EIRP) of 38.8 dBW up to a 512 kbps carrier. GEE will maintain the return uplink EIRP level and the off-axis EIRP spectral density, by tight control of system operation that includes:

- 1) Maintaining pointing error to be  $\leq 0.2$  degrees, relative to the intended satellite;
- 2) Fault detection that terminates transmissions when out of tolerance conditions (including the antenna pointing error) are detected; and
- 3) Continuous monitoring/oversight by ground network operations center (NOC).

EAS acknowledges that the use of the above referenced transmit/receive antenna by GEE has the potential to receive harmful interference from adjacent satellite networks that may be unacceptable. The EIRP levels set forth above for the proposed system, installed and operated in accordance with the above conditions, are within the levels coordinated with the adjacent satellite operators and should not cause unacceptable interference into adjacent satellites operating in accordance with FCC's two-degree spacing policy. If the FCC authorizes the operations proposed by GEE in its application, EAS will include the antenna, as described above, in all future satellite network coordinations with other adjacent satellite operators. GEE shall comply with all such coordination agreements reached by the satellite operators.

In order to prevent unacceptable interference into adjacent satellites, EAS has been informed, and GEE acknowledges, that the antennas will be installed and operated in accordance with the above conditions and the terms of its FCC License. In particular, the proposed antenna will operate in compliance with the Commission's two-degree spacing requirements, including the pointing accuracy and shutdown requirements of Section 25.227(a) of the Commission's Rules that apply to ESAA. See 47 C.F.R. § 25.227(a).



Moreover, GEE agrees that it will accept interference from transmissions to adjacent satellites in the 14.0-14.5 GHz band to the degree to which harmful interference would not be expected to be caused to an earth station employing an antenna conforming in all respects to the reference patterns defined in Section 25.209 of the FCC's rules. If the use of this antenna should cause unacceptable interference into other systems in this band, GEE has agreed that it will terminate transmissions immediately upon notice from the affected parties.

Based on GEE's commitment to the operating conditions stated above, satellites operating at two-degree spacing or more should not experience unacceptable interference as a result of the modification of GEE's Ku-band ESAA blanket FCC License as outlined here to include E115WB at 114.9° W.L. as an additional point of communication.

Sincerely,



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Hector Fortis  
Director of Regulatory and International Affairs  
Satélites Mexicanos Sa de CV

Acceptance by GEE, Inc.:

GEE affirms that the information provided to EAS and reflected in this coordination letter is true and accurate to the best of GEE's knowledge, information and belief, and that it shall comply with all relevant coordination agreements, as provided herein.

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Aditya Chatterjee  
Chief Technical Officer  
GEE, Inc.

